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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.   | CONFIRMATION NO. |
|---|-------------|----------------------|-----------------------|------------------|
| 10/720,716  | 11/24/2003  | Peter C. Song        | 64032/P010US/10309493 | 5403             |
| 29053   | 7590        | 11/16/2005           | EXAMINER              |                  |
| DALLAS OFFICE OF FULBRIGHT & JAWORSKI L.L.P.<br>2200 ROSS AVENUE<br>SUITE 2800<br>DALLAS, TX 75201-2784 |             |                      |                       | DINH, TRINH VO   |
|   |             | ART UNIT             |                       | PAPER NUMBER     |
|   |             | 2821                 |                       |                  |

DATE MAILED: 11/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 10/720,716             | SONG ET AL.         |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | Trinh Vo Dinh          | 2821                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 31 August 2005.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-128 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) 64-78 is/are allowed.
- 6) Claim(s) 1,12,14,79,85,90 and 91 is/are rejected.
- 7) Claim(s) 2-11,13,15-63,80-84,86-89 and 92-128 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

|   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                    | Paper No(s)/Mail Date. _____.   |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____. | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|   | 6) <input type="checkbox"/> Other: _____.                                   |

## **DETAILED ACTION**

This is a response to amendment filed 08/31/2005. The objections of the specification, the claim objections and claim rejections under 112 & 2 paragraph have been withdrawn in view of the amendment. However, the arguments respecting to reference Yamazaki are not deemed to be persuasive. Therefore, the 102 claim rejections based on Yamazaki are retained and repeated for the following reasons.

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 12 and 14 drawn to an apparatus and the method claims 79, 85 and 90-91 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamazaki (US 5,561,434 of record).

With respect to claims 1, 12 and 14, Yamazaki discloses, in Fig. 4A, a plurality of antenna elements (HAn, LAn), an integrated feed network (HMn, LMn) feeding said elements from an input (Fig. 4A) and providing adaptive beam forming for said plurality of beams, said feed network (HMn, LMn) comprising switched phase shifters (HMn, LMn in Figs. 8-9, or 1003 in Fig. 10). Note that Nishikawa has the same structural configuration as claimed in claim 1. Therefore, although not explicitly stated in Nishikawa, it is inherently that the antenna elements provide the claimed functional recitation of a plurality of beam in different direction, each beams selectively having beam polarization or beam width. Yamazaki further discloses the array

(abstract) being multi-band (abstract). Yamazaki also discloses the antenna elements (HAn, LAn) for different bands being interleaved (in Fig. 4A).

With respect to claims 79, 85 and 90-91, the apparatus discussed above would perform the claimed method.

***Allowable Subject Matter***

3. Claims 64-78 are presently allowed.
4. Claims 2-11, 13, 15-63, 80-84, 86-89, and 92-128 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
5. The following is a statement of reasons for the indication of allowable subject matter:

The cited art of record fails to teach a multi-band and multi-diversity antenna array comprising a plurality of higher frequency antenna element interleaved with a lower frequency antenna elements and an integrated feed network comprising switched phase shifters which feed each of the elements from separate input and providing adapted beam forming for the plurality of beams, or the parasitic element being spaced in a range of 0.3 to 0.8 wavelength from the feed element ,or controls having fault detection provided by current sensing to assess the current drawn by the phase shifter of the feed network to determine proper operation of the feed network phase shifters.

***Response to the arguments***

6. With respect to claims 1, firstly, Applicant argues, in page 25 of the argument, that the Yamazaki reference fails to teach “a multi-diversity antenna array”. However, the limitation is appeared in the preamble. Therefore, it cannot be relied upon to define over the prior art.

Secondly, Applicant argues that Yamazaki fails to teach “ a plurality of antenna elements, said elements providing a plurality of beams”. The Examiner respectively disagrees. Yamazaki discloses a plurality of antenna elements (first and second array antenna element HAn, LAn). The first array elements provide a low beam and the second array elements provide a high beam. In other words, Yamazaki does disclose the claimed limitation of “ a plurality of antenna elements, said elements providing a plurality of beams”. A last, Applicant argues that Yamazaki does not teach “a phase shifter comprising phase shifters”. The Examiner respectively disagrees. As shown in Figs. 8-10, said feed network (HMn, LMn) comprising switched phase shifters (1003). As the above reasons, the rejection of claim 1 under 35 USC 102 (e) is proper.

With respect to the rejections of dependent claims 12, 85, 90-91, which employing the additional teaching of Yamazaki, Applicant has not offer any specific argument thereagainst. Accordingly, no further comments concerning the rejections of the dependent claims are necessary.

### ***Conclusion***

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

Art Unit: 2821

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

*Inquiry*

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Trinh Vo Dinh whose telephone number is (571) 272-1821. The examiner can normally be reached on Monday to Friday from 9:30AM to 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong, can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*Art unit 2821*

  
Trinh Vo Dinh  
November 14, 2005